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Stefaan Decorte Vogelheide, 28 Brussels, B-9052 BELGIUM			CHANG, LI WU	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,832	DECORTE ET AL.	
	Examiner	Art Unit	
	LIWU CHANG	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 09 August 2006.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-40 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-40 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 09 August 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date <u>08/09/2006</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

1. Claims 1-40 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show details of invention subject matter as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. In addition, in Figure 1, the labels are not readable. Larger font should be used.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin

as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The layout of this application does not comply with the layout guideline provided in 37 CFR 1.77(b). Appropriate correction is required. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.

- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Specification

1. The abstract of the disclosure is objected to because the claimed "medium" is not defined. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims fail to provide a tangible result, and there must be a practical application, by either

- 1) transforming (physical thing) or
- 2) by having the **FINAL RESULT** (not the steps) achieve or produce a useful (specific, substantial, AND credible), concrete (substantially repeatable/non-unpredictable), AND tangible (real world/non-abstract) result.

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended. A claim that recites a computer that solely calculates a mathematical formula is not statutory.

There is no practical application of generating an event.

Regarding claim 1, it is directed to a computer-readable medium having computer-executable components. A computer-readable medium having computer-executable components can be an agent or behavior component. A computer-readable medium is not defined in the specification and it may not be hardware. An agent or a behavior component can be a software *per se*.

Accordingly, claim 1 is directed to only software that is not statutory.

Regarding claim 24, it is directed to a computer program embodied on a computer-readable medium. A computer-readable medium is not defined in the specification and it may not be hardware. Accordingly, claim 24 is directed only to a computer program that is not statutory. Regarding claim 39, a database can be of a software program that is not statutory.

Accordingly, claim 39 is directed to only software that is not statutory. As to any claim not specifically discussed it is a dependent claim that is rejected for the reasons given above with respect to the claim(s) on which it depends.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 39-40 are rejected under 35 U.S.C. 102(a) as being anticipated by Xu (Xu, H. "A Model-Based Approach for Development of Multi-Agent Software Systems", Thesis, University of Illinois at Chicago, 2003), and hereinafter Xu.

6. With respect to claim 39, Xu discloses an agent-oriented database, comprising:

a plurality of fields including at least one agent (Xu: pp 30, p 3, describe the fields included in the agent construct); the at least one agent having at least one sensor component including a goal or method change component (Xu: pp 50, p 3, lines 1-2, and pp 30, p 3, lines 5-7) (Xu: pp 50, p 3, lines 1-5);

wherein the at least one sensor component is **operable to** generate (as oppose to actually generating) at least one event based at least in part on at least one generated value from the goal or method change component (Xu: pp 50, p 2, lines 2-6,

describe the sensor generates events, e.g., triggers fires, based on generated value from the goal or change component, e.g., the state of the goal or change method component, wherein the change is viewed as the result of events, as in section 7-1, lines 9-11).

7. With respect to claim 40, Xu discloses wherein the at least one agent includes a behavior component (Xu: pp 49, p 2, lines 1-8).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 3-7, 9-11, 14-23, 24-35, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Xu**, in view of Ferguson et al. (EP 0862113 A2), hereinafter **Ferguson**.

With respect to claim 1, Xu discloses a computer-readable medium (undefined) having computer-executable components, comprising:

at least one agent (not further defined) having at least one sensor component including a goal or change method component and at least one behavior component (Xu: pp 50, p 3, lines 1-2, and pp 30, p 3, lines 5-7);

wherein the at least one sensor component generates at least one event based at least in part on at least one generated value from the goal or change method component (Xu: pp 50, p 2, lines 2-6, describe the sensor generates events, e.g., triggers fires, based on generated value from the goal or change component, e.g., the state of the goal or change method component, wherein the change is viewed as the result of events, as in section 7-1, lines 9-11), and the at least one behavior component determines whether to activate a thread of execution based at least in part on the at least one generated event from the at least one sensor component (Xu: pp 102, lines 1-3, wherein one behavior component, e.g., the planner and/or the internal structure, in Figure 27, activate(s) the thread in communication based on events from sensors, as in pp 103, p 2, lines 5-7 or pp 50, p2, lines 2-6).

Xu does not expressly disclose the action of determining whether to activate a thread. However, Ferguson discloses determining whether to activate a thread (Ferguson: Abstract). Xu's intelligent agent programming accommodates various message

control strategies. The condition of activating threads may depend upon the synchronous or asynchronous communication mode in use. It would have been obvious for one of ordinary skill in the art at the time of invention to combine the teachings of Xu with Ferguson to incorporate control of determining the activation of thread in order to enhance communication and processing efficiency.

9. With respect to claim 3, Xu discloses wherein the at least one event is one of a changes or updates event (Xu: pp 93, section 7.1, lines 9-11).

10. With respect to claim 4, Xu discloses wherein the computer-readable medium of claim 1, wherein the at least one behavior component is external to the agent of the at least one event generating sensor component (Xu: e.g., pp 100, Figure 27, the internal structure module or the seller GSP).

11. With respect to claim 5, Xu discloses wherein the activation of the at least one behavior component includes generating at least one call (Xu: e.g., pp 102, Table IX).

12. With respect to claim 6, Xu discloses wherein the at least one sensor component may be activated by its goal or change

method component to generate at least one event based at least in part on the at least one call (Xu: e.g., pp 102, Table IX shows the sensor activated during the listening event).

13. With respect to claim 7, Xu discloses wherein the at least one sensor component is included in an agent external to the agent of the at least one call generating behavior component (Xu: pp 99, p 2 pr p 3, a sensor may be with agent A, which is external to agent B).

14. With respect to claim 9, Xu discloses wherein the at least one behavior component generates a status event upon the activation of a thread of execution, the status event being receivable by at least one other behavior component (Xu: pp 93, section 7.1, p 1, lines 9-11, a status event, e.g., the state of goal module as in goal-driven or event-driven).

15. With respect to claim 10, Xu discloses wherein the at least one behavior component generates a status event upon the completion of a thread of execution, the status event being receivable by at least one other behavior component (Xu: pp 102, p 1, lines 2-7).

16. With respect to claim 11, Xu discloses wherein the at least one behavior component activates a thread of execution based on an independent triggering condition (Xu: pp 33, p 3, lines 2-4 and pp 102, p 1, lines 2-7, describe the possible triggered event for external communication). Ferguson discloses determining whether to activate a thread (Ferguson: Abstract).

17. With respect to claim 11, Xu discloses wherein the at least one behavior component activates a thread of execution based on an independent triggering condition (Xu: pp 33, p 3, lines 2-4 and pp 102, p 1, lines 2-7, describe the possible triggered event for external communication). Ferguson discloses determining whether to activate a thread (Ferguson: Abstract).

18. With respect to claim 14, Xu discloses wherein the independent triggering condition includes at least one when statement and at least one if statement (Xu: pp 34, p 1, lines 2-8), wherein the when statement indicates events to which the independent triggering condition responds to become active and the if statement is based on predetermined filtering values (Xu: pp 34, p 1, lines 2-4, describes the when condition for a

transition and pp 67, lines 3 or 4, gives the value of the if condition).

19. With respect to claim 15, Xu discloses wherein the independent triggering condition requires a plurality of generated events to become active (Xu: pp 33, p 3, line 3, indicates plurality of generated actions, e.g., certain actions).

20. With respect to claim 16, Xu discloses wherein the independent triggering condition is based on the local perception of the at least one behavior component (Xu: local perception, e.g., the change of goal, pp 99, p 3, lines 3-5).

21. With respect to claim 17, Xu discloses wherein the at least one behavior component activates a thread of execution for an active independent triggering condition before the independent triggering condition becomes active again (Xu: pp 99, p 3, lines 4-6 and pp 100, p 1, lines 8-10, indicate the triggering condition).

22. With respect to claim 18, Xu discloses wherein the at least one behavior and sensor components are defined at least one keyword (Xu: pp 65, Figure 15, show the behavior or sensor

components are identified with keywords, e.g., labels shown in the Figure 15 or the id, pp 30, p 3, lines 3-5), wherein the at least one keyword indicates at least one of a particular agent, at least one behavior or sensor and a particular event for activating an independent triggering condition (Xu: pp 65, the upper half of legend shows agents).

23. With respect to claim 19, Xu discloses wherein the at least one keyword is operable to indicate any of a behavior or sensor component, agent or event unknown to the at least one agent (Xu: pp 65, Figure 15, the 1st half of legend shows some of those agents).

24. With respect to claim 20, Xu discloses wherein the at least one keyword is operable to indicate a predetermined agent class (Xu: pp 65, Figure 15, the 1st half of legend shows the agent class).

25. With respect to claim 21, Xu discloses wherein the at least one keyword may indicate a particular agent within a predetermined agent class (Xu: pp 65, Figure 15, the 1st half of legend shows the agent, e.g., shopping agent, within a predetermined agent class, e.g., shopping class).

26. With respect to claim 22, Xu discloses wherein the at least one keyword is operable to indicate when a particular behavior or sensor may be activated (Xu: pp 65, Figure 15, the 2nd half of legend shows possible behaviors of agents).

27. With respect to claim 23, Xu discloses wherein the at least one agent may generate an event (Xu: pp 93, p 1, lines 9-11, indicate the change of states defines events).

28. With respect to claim 24, Xu discloses a computer program embodied on a computer-readable medium for enabling a behavior based multi-agent computing system, comprising:

code segment for receiving a request (Xu: pp 30, the 2nd item of p 2 and pp 32, p 3, lines 4-6, indicates requests received via speech act communication standard); and an execution framework comprising:

a plurality of agents having at least one sensor component, including at least one goal or change method component, and at least one normal, exhaustive or redundant behavior component (Xu: pp 50, p 2, lines 1-3, a sensor, and pp 30, p 3, section 3.2 describe the agent model, which includes goal or change methods component and behavior components).

wherein the at least one goal or change method component generates at least one value (Xu: section 7-1, lines 9-11, the

value, e.g., the change of states), the at least one sensor component generates at least one event based at least in part on the at least one generated value from the at least one goal or change method component (Xu: pp 50, p 2, lines 2-6, describe the sensor generates events, e.g., triggers fires, based on generated value from the goal or change component, e.g., the state of the goal or change method component, wherein the change is viewed as the result of events, as in section 7-1, lines 9-11), and the at least one behavior component determines whether to activate a thread of execution based at least in part on at least one generated event from the at least one sensor component (Xu: pp 102, lines 1-3, wherein one behavior component, e.g., the planner and/or the internal structure, in Figure 27, activate(s) the thread in communication based on events from sensors, as in pp 103, p 2, lines 5-7 or pp 50, p2, lines 2-6).

Xu does not expressly disclose the action of determining whether to activate a thread. However, Ferguson discloses determining whether to activate a thread (Ferguson: Abstract). Xu's intelligent agent programming accommodates various message control strategies. The condition of activating threads may depend upon the synchronous or asynchronous communication mode in use. It would have been obvious for one of ordinary skill in the art at the time of invention to combine the teachings of Xu

with Ferguson to incorporate control of determining the activation of thread in order to enhance communication and processing efficiency.

29. With respect to claim 25, Xu discloses wherein the request is received from at least one agent (Xu: pp 30, the 2nd item of p 2).

30. With respect to claim 26, Xu discloses wherein the execution framework is layered over an object-oriented language construct to become an agent-oriented language construct (Xu: pp 94, p 3, lines 1-3, and pp 96, p 4, lines 3-5), wherein objects and agents are interchangeable components within the agent-oriented language construct (Xu: pp 3, p 1, lines 3-6, pp 5, p 4, lines 1-2, or pp 52, p 1, lines 1-4, indicate agent and object have the same construct).

31. With respect to claim 27, Xu discloses wherein the agent-oriented language construct comprises an object-oriented-based language construct (Xu: pp 30, p 3 or section 3.2, lines 1-3).

32. With respect to claim 28, Xu discloses wherein the agents form communities of agents being able to replicate (Xu: wherein agents, such as selling agents of pp 64, the 5th item, form

communities, e.g., classes, pp 30 footnote, being able to replicate, e.g., to be generated from inheritance, pp 52, section 4.2.2 and pp 59, section 4.4).

33. With respect to claim 29, Xu discloses wherein the agents comprise a community of agents that are able to migrate between replicated communities (Xu: pp 81, Figure 18, and pp 87, Figure 2(a), show the migration state with a "move" method call, where the move may happen between replicated communities, e.g., inheritance classes as for 2 selling agents, pp 64, the 5th item).

34. With respect to claim 30, Xu discloses wherein an agent may migrate between communities through knowledge of a target community identification parameter (Xu: pp 83, p 1, lines 3-10, describe agents migrate between communities, hosts A and B, through knowledge of target community identification parameter, e.g., addresses and goal such as stock selling/buying, pp 88, p 3, lines 7-9).

35. With respect to claim 31, Xu discloses wherein an agent may search for a target community (Xu: pp 83, p 1, lines 3-10, indicates the search through query).

36. With respect to claim 32, Xu discloses wherein the layered system allows through agent communities spawning themselves to work in grid computing (Xu: wherein agent communities spawning themselves, e.g., generating themselves through inheritance as described in pp 52, section 4.2.2 and pp 59, section 4.4, to work in a grid computing, e.g., mobile agents, as shown in pp 79, Figure 17, in distributed, cooperative and communication oriented, pp 78, p 2, lines 5-9 and pp 119, p 4, lines 1-3).

37. With respect to claim 33, Xu discloses wherein an agent may be active across communities through the use of at least one stub, wherein a stub may hold at least one sensor and are automatically generated (Xu: wherein agent may be active across communities through the use of a stub, e.g., information about security and resource criteria, pp 83, p 1, lines 10-12, and stub may be hold at a sensor, e.g., arrow pointing towards the sensor from environment, pp 100, Figure 27).

38. With respect to claim 34, Xu discloses wherein the agents become a part of the namespaces that may be brought together to achieve a service (Xu: agents become part of the namespace, e.g., subagents function under the class label, such as mobile agent, pp 84, p 1, lines 5-8, to achieve a service, e.g.,

mobile agent family in e-marketplace domain, pp 88, p 3, lines 1-2).

39. With respect to claim 35, Xu discloses wherein a service may be indicated by a keyword or by an attribute that annotates the namespace (Xu: pp 84, p 1, lines 5-8, and pp 88, p 3, lines 1-2).

40. With respect to claim 38, Xu discloses wherein at least one behavior is assigned to at least one file to manage itself (Xu: pp 34, p 1, lines 1-6, indicates the behavior, e.g., sending, is assigned to a file, e.g., a message, to manage itself, e.g., to fire transition internal).

Claim Rejections - 35 USC § 103

41. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Xu**, in view of **Ferguson**, further in view of **Elazar** et al. (US Pub. No. 2003/0169856 A1), and hereinafter Elazar.

42. With respect to claim 2, Xu does not disclose wherein the at least one behavior component determines whether to record the at least one generated event. The combined teachings of Xu and Ferguson do not disclose wherein the at least one behavior component determines whether to record the at least one

generated event. However, Elazar discloses wherein the at least one behavior component determines whether to record the at least one generated event (Elazar: [0025], lines 5-9).

It would have been obvious for one of ordinary skill in the art at the time of invention to incorporating the teachings of Elazar with the teachings of Xu, in view of Ferguson, by including the function of determining event recording because event logging or recoding is common in a database system and it would leverage memory management for an autonomous agent with selective recording.

Claim Rejections - 35 USC § 103

43. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Xu**, in view of **Ferguson**, further in view of **Ukai e al.** (US Pub. No. 2004/0003319 A1), and hereinafter **Ukai**.

44. With respect to claim 8, Xu disclose the events generated from sensor component (Xu: e.g., pp 70, Figure 16), but does not expressly disclose wherein a behavior component may subsume or resume at least one other behavior component. The combined teachings of Xu and Ferguson do not disclose wherein a behavior component may subsume or resume at least one other behavior component. However, Ukai discloses wherein a behavior component may subsume or resume at least one other behavior

component (Ukai: [0041], lines 19-31, describe resume and subsume, e.g., take-over).

The features of subsume (or take-over) and resume are commonly used in managing fail-over, exception-handling, and conflict resolution in cooperative agent environment, an objective of Xu's framework (pp 119, p 4, lines 1-3). It would have been obvious for one of ordinary skill in the art at time of invention to combine the teachings of Ukai with the teachings of Xu, in view of Ferguson, by implementing the features of subsume and resume in order to provide functionality of handling exception, error, condition violation for cooperative and communication oriented agents.

Claim Rejections - 35 USC § 103

45. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Xu**, in view of **Ferguson**, further in view of Rowland et al. (US Pub. No. 2002/0129264 A1), hereinafter **Rowland**.

46. With respect to claim 12, Xu does not expressly disclose wherein the independent triggering condition may further determine a priority status for the activation of a particular thread of execution, and wherein a plurality of threads of execution may be performed sequentially based on their priority

status for activation. The combined teachings of Xu and Ferguson do not disclose wherein the independent triggering condition may further determine a priority status for the activation of a particular thread of execution, and wherein a plurality of threads of execution may be performed sequentially based on their priority status for activation.

However, Rowland discloses wherein the independent triggering condition may further determine a priority status for the activation of a particular thread of execution (Rowland: [0130], lines 17-19), and wherein a plurality of threads of execution may be performed sequentially based on their priority status for activation (Rowland: [0130], lines 2-4).

It would have been obvious for one of ordinary skill in the art to combine the teachings of Xu and Ferguson with the teachings of Rowland by implementing priority of threads to be sequentially executed in order to leverage the functionality for handling multi-thread execution for asynchronous communication-oriented agent programming.

47. With respect to claim 13, Xu discloses wherein at least one of a ContinueWhen, resumeWhen and complete When statement within or outside the at least one behavior component is operable to synchronize threads of execution based on their

priority status for activation (Xu: pp 33, p 3, lines 1-4, indicates the triggering, while pp 70, Figure 16, shows the synchronization component, wherein behavior properties, in pp 67, p 3 or 4, of Xu or Col 3, lines 33-34, of Ferguson, implement complete When statement).

48. **Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Ferguson, further in view of Larder et al. (US Pub. No. 2003/0190603 A1), hereinafter Larder.**

49. With respect to claim 36, Xu does not expressly discloses wherein at least one agent is operable to represent a neuron of a neural network, the at least one agent having at least one triggering value, and the at least one behavior component is operable to respond to at least one event from at least one triggering value in at least one lower layer. The combined teachings of Xu and Ferguson do not disclose wherein at least one agent is operable to represent a neuron of a neural network, the at least one agent having at least one triggering value as the at least one sensor, and the at least one behavior component is operable to respond to at least one event from at least one triggering value in at least one lower layer.

However, Larder discloses wherein at least one agent is operable to represent a neuron of a neural network (Larder: [0017], lines 6-8), the at least one agent having at least one triggering value as the at least one sensor (Larder: each output neuron, e.g., some agents, having a triggering value, [0138], lines 4-10, as sensor, e.g., a diagnosis value, [0043], lines 1-3), and the at least one behavior component is operable to respond to at least one event from at least one triggering value in at least one lower layer (Larder: lower layer, e.g., hidden and input layers).

It would have been obvious for one of ordinary skill in the art to incorporating the teachings Larder with the teachings of Xu and Ferguson by implementing agent adaptation with neural network in order to assist in handling complex agent interactions.

50. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xu, in view of Ferguson, further in view of Zhu et al. (Zhu, F. & Guan, S. "Towards evolution of software agents in electronic commerce," 2001 IEEE, pp 1303-1308), and hereinafter ZG.

51. With respect to claim 37, Xu does not disclose wherein at least one agent utilizes at least one mutation or cross-over

operator in the at least one behavior to implement at least one self-writing learning agent, thereby allowing the computer program to evolve automatically. The combined teachings of Xu and Ferguson do not disclose wherein at least one agent utilizes at least one mutation or cross-over operator in the at least one behavior to implement at least one self-writing learning agent, thereby allowing the computer program to evolve automatically.

However, ZG discloses wherein at least one agent utilizes at least one mutation or cross-over operator in the at least one behavior to implement at least one self-writing learning agent, thereby allowing the computer program to evolve automatically (ZG: sections 3 and 5, describe the evolution in agent with GA). Nonetheless, enabling new capability is an objective of Xu (pp 119, p 3, lines 3-5). It would have been obvious for one of ordinary skill in the art at the time of invention to combine the teachings of Xu, in view of Ferguson with the teachings of ZG by implementing the evolutionary algorithm, as taught by ZG, in order to provide the functionality for generating new capabilities from the combination of mental states of agents and resources.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIWU

CHANG whose telephone number is 571-270-3809. The examiner can normally be reached on 8:30AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/L. C./
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May 07, 2008

/David R Vincent/
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